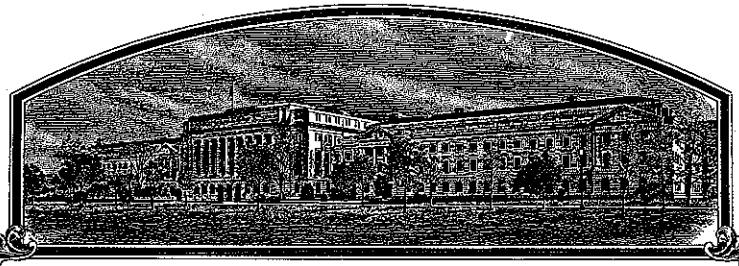


No. 200700209

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

University of Georgia Research Foundation, Inc. / The United States Government as represented by the Secretary of Agriculture

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSES, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IN THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

BAHIAGRASS

'TifQuik'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this sixteenth day of July, in the year two thousand and eight.*

Attest:

Commissioner

Secretary of Agriculture

REPRODUCE LOCALLY. *Include form number and date on all reproductions* — Form Approved - OMB No. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE
(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER
mail 1/28
University of Georgia Research Foundation, Inc./United States Government as represented by the Secretary of Agriculture

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME
Rapid C4

3. VARIETY NAME
TifQuik

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*
University of Georgia Research Foundation, Inc.
Boyd Graduate Studies Research Center, Rm 627
Athens, GA 30602-7411

5. TELEPHONE *(include area code)*
(706) 542-1404

6. FAX *(include area code)*
706-542-3837

FOR OFFICIAL USE ONLY

PVPO NUMBER
#200700209

FILING DATE
March 21, 2007

7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION *(corporation, partnership, association, etc.)*
Corporation
Government

8. IF INCORPORATED, GIVE STATE OF INCORPORATION
Georgia
N/a

9. DATE OF INCORPORATION
November 17, 1978
N/a

10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. *(First person listed will receive all papers)*
Robert Fincher, University of Georgia Research Foundation, Inc.
627 Boyd Graduate Studies Research Center, Athens, GA
Athens, GA 30602-7411
Richard J. Brenner, Assistant Administrator, USDA-ARS-OTT
5601 Sunnyside Avenue, Rm. 4-1159, Beltsville, MD 20705

FEES RECEIVED
FILING AND EXAMINATION FEES: $ 4382 — DATE 3/21/2007
CERTIFICATION FEE: $ 768 — DATE 5/23/2008

11. TELEPHONE (Include area code)
(706) 542-1404

12. FAX (Include area code)
706-542-3837

13. E-MAIL
rrf@uga.edu

14. CROP KIND *(Common Name)*
Bahiagrass

16. FAMILY NAME *(Botanical)*

18. DOES THE VARIETY CONTAIN ANY TRANSGENES? *(OPTIONAL)*
☐ YES ☒ NO
IF SO, PLEASE GIVE THE ASSIGNED USDA-APHIS REFERENCE NUMBER FOR THE APPROVED PETITION TO DEREGULATE THE GENETICALLY MODIFIED PLANT FOR COMMERICALIZATION. _____

15. GENUS AND SPECIES NAME OF CROP
Paspalum notatum

17. IS THE VARIETY A FIRST GENERATION HYBRID?
☐ YES ☒ NO

19. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse)
- a. ☒ Exhibit A. Origin and Breeding History of the Variety
- b. ☒ Exhibit B. Statement of Distinctness
- c. ☒ Exhibit C. Objective Description of Variety
- d. ☐ Exhibit D. Additional Description of the Variety *(Optional)*
- e. ☒ Exhibit E. Statement of the Basis of the Owner's Ownership
- f. ☒ Exhibit F. Declaration Regarding Deposit
- g. ☐ Voucher Sample *(3,000 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository)*
- g. ☒ Filing and Examination Fee ($4,382), made payable to "Treasurer of the United States" *(Mail to the Plant Variety Protection Office)*

20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? *(See Section 83(a) of the Plant Variety Protection Act)*
☒ YES *(If "yes", answer items 21 and 22 below)* ☐ NO *(If "no", go to item 23)*

21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES?
☒ YES ☐ NO
IF YES, WHICH CLASSES? ☒ FOUNDATION ☐ REGISTERED ☒ CERTIFIED

22. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
☐ YES ☒ NO
IF YES, SPECIFY THE NUMBER 1,2,3, etc. FOR EACH CLASS.
☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED
(If additional explanation is necessary, please use the space indicated on the reverse.)

23. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES?
☐ YES ☒ NO
IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. *(Please use space indicated on reverse.)*

24. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT *(PLANT BREEDER'S RIGHT OR PATENT)*?
☐ YES ☒ NO
IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. *(Please use space indicated on reverse.)*

25. The owners declare that a viable sample of basic seed of the variety has been furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Owner(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF OWNER	SIGNATURE OF OWNER
Robert R. Fincher	Richard J. Brenner
NAME *(Please print or type)*	NAME *(Please print or type)*
Robert R. Fincher	Richard J. Brenner
CAPACITY OR TITLE	CAPACITY OR TITLE
Chief Licensing Officer	Assistant Administrator
DATE	DATE
March 15, 2007	May 16, 2006

(See reverse for instructions and information collection burden statement)

#200700209

(See reverse for instructions and information collection burden statement)

GENERAL INSTRUCTIONS: To be effectively filed with the Plant Variety Protection Office (PVPO), **ALL** of the following items must be **received** in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E, F; (3) for a tuber reproduced variety, verification that a viable *(in the sense that it will reproduce an entire plant)* tissue culture will be deposited and maintained in an approved public repository; and (4) payment by credit card or check drawn on a U.S. bank for $4,382 ($518 filing fee and $3,864 examination fee), payable to "Treasurer of the United States" *(See Section 97.6 of the Regulations and Rules of Practice).* **NEW:** With the application for a seed reproduced variety **or by direct deposit soon after filing**, the applicant must provide at least 3,000 viable untreated seeds of the variety *per se*, and for a hybrid variety at least 3,000 untreated seeds of each line necessary to **reproduce** the variety. Partial applications will be held in the PVPO for not more than 90 days; then returned to the applicant as un-filed. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 401, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a payment by credit card or check payable to "Treasurer of the United States" in the amount of $768 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. The fees for filing a change of address; owner's representative; ownership or assignment; or any modification of owner's name is specified in Section 97.175 of the regulations. *(See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)*

Plant Variety Protection Office
Telephone: (301) 504-5518 **FAX:** (301) 504-5291
General E-mail: PVPOmail@usda.gov
Homepage: http://www.ams.usda.gov/science/pvpo/PVPindex.htm

SPECIFIC INSTRUCTIONS:
To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority and **provide evidence** that the permanent name of the application variety (even if it is a parental, inbred line) has been cleared by the appropriate recognized authority before the Certificate of Protection is issued. For example, for agricultural and vegetable crops, contact: U.S. Department of Agriculture, Agricultural Marketing Service, Livestock and Seed Programs, **Seed Regulatory and Testing Branch**, 801 Summit Crossing Place, Suite C, Gastonia, North Carolina 28054-2193 Telephone: (704) 810-8870. http://www.ams.usda.gov/lsg/seed.htm.

ITEM

19a. Give:
(1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;
(2) the details of subsequent stages of selection and multiplication;
(3) evidence of uniformity and stability; and
(4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified

19b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:

(1) identify these varieties and state all differences objectively;
(2) attach replicated statistical data for characters expressed numerically and demonstrate that these are clear differences; and
(3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.

19c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.

19d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, *etc.*

19e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.

20. If "Yes" is specified *(seed of this variety be sold by variety name only, as a class of certified seed)*, the applicant **MAY NOT** reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. *(See Regulations and Rules of Practice, Section 97.103).*

23. *See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.*

24. *See Section 55 of the Act for instructions on claiming the benefit of an earlier filing date.*

22. CONTINUED FROM FRONT *(Please provide a statement as to the limitation and sequence of generations that may be certified.)*

23. CONTINUED FROM FRONT *(Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)*

24. CONTINUED FROM FRONT *(Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)*

Exhibit A – Breeding History:

1. Rapid C4 (proposed name Tifquik) is a result of four cycles of selection for fast germination from Tifton 9 using the recurrent restricted phenotypic selection (RRPS) previously used by Glenn Burton for yield improvements in bahiagrass.

2. For each cycle, enough seed was planted from the previous cycle to obtain 1000 seedlings that germinated within the first week. The sole criterion for selection of plants was on early germination. Seedlings were transplanted to 5 cm clay pots in greenhouse then to a fumigated field to establish a nursery. Plants were allowed to cross pollinate, seed was hand harvested, and the seed was then used to start the next cycle the following spring in the greenhouse. The four cycles were completed in 2002. Seed from 2002 was used to establish greenhouse germination tests, a replicated field test and begin seed increase.

3. Breeder seed from 2004 were germinated and one hundred plants of each the TifQuik and Tifton 9 were transplanted in the greenhouse and later planted as spaced plants in the field during the summer of 2005. Branch number and angle, plant height, leaf length and width, as well as raceme number and length recorded for each plant. For each trait, the range and standard deviation of Rapid C4 were equal to or less than those of Tifton 9 breeder seed.

4. Seed germination and plant characteristics for TifQuik were compared for seed produced from open pollinated breeder plots for the past 4 generations of reproduction. Seed germination and plant characteristics have remained consistent each year. Since bahiagrass is perennial, seed was tested from original breeder plots as well as new breeder plot area in subsequent years with no changes.

5. TifQuik has been observed for 4 generations of increase and is stable and uniform. Less than 1% of the seed produces variance for chlorophyll deficient plants that do not survive.

Exhibit B – Statement of Distinctness Guidelines

1. TifQuik is most similar to Tifton 9. The available bahiagrass cultivars are Pensicola, Argentine and Tifton 9. Germination of TifQuik averaged a five-fold increase to Tifton 9 after six days and 3 fold better than Tifton 9 after eight days in greenhouse studies. In field studies TifQuik emerged significantly quicker (75%) than Tifton 9 (32%) and Pensacola (18%) after one week. After 4 weeks plant height was higher for TifQuik (21 cm) compared to Tifton 9 (12 cm) and Pensacola (10.5 cm). Dry matter yields of TifQuik were twice the yields of Tifton 9 and four times higher than Pensacola two months after planting. Subsequent yields from cuttings at 4 week intervals resulted in similar yields between TifQuik and Tifton 9. Mature leaves of TifQuik and Tifton 9 have similar length, width and angle. Flower heads have generally three racemes with lengths similar to Tifton 9. Seed production from 1/5 acre plots was higher than for Tifton 9 in the second year of breeder seed increase.

2. Supporting data:

Table 1: Mean percent germination (% of planted seed) of 100 seed planted (three replications) in the greenhouse March 31, 2003 and January 22, 2004, Tifton, GA from seed stock produced in 2002 and 2003 in Tifton, respectively.

Genotype	Germ % day 6*	Germ % day 8*	Germ % day 10*	Germ % day 13*
Planted 2/24/03				
Rapid C4	48.5 a†	76.9 a	100 a	100 a
Tifton 9	10.3 b	40.5 b	85.7 b	98.5 a
Planted 3/31/03				
Rapid C4	43.1 a	78.6 a	92.7 a	100 a
Tifton 9	9.3 b	26.8 b	61.9 b	81.2 b
Planted 1/22/04				
Rapid C4	32.8 a	61.2 a	83.6 a	100 a
Tifton 9	4.0 b	42.0 b	88.1 a	98.0 a

*percent of final germinated seeds (30 days after planting)
† Values in a column followed by same letters are not significant different at the 0.05 probability level using PROC GLM (SAS).

TifQuik vs. Sand Mountain

Further data was requested concerning TifQuik in the PVP application. Specifically, a comparison with the cultivar Sand Mountain was requested. Following are two tables of data from a recent study. Approximately 5 mature seed heads were harvested from each of four replicate plots of four cultivars (TifQuik, Tifton 9, Pensacola, and Sand Mountain) on July 26, 2007. The plots that seed heads were harvested from represent a yield trial that was planted in April of 2005, in Tifton, GA and have been maintained contamination free and clipped every five weeks during the summers of 2005, 2006, and 2007.

Mature seed was collected from the seed heads and all seed from the four replicate plots of the individual cultivars were blended, dried at ambient temperate and stored at 20° C until planting. Two separate germination studies were conducted in the greenhouse. One hundred seed of each cultivar were planted in moist sand in 0.6 meter long 0.4 meter wide wooden flats. Sand was 5 cm deep. Three replications were planted for each trial. Seed were planted at 3 mm depth. Flats were watered twice a day. Trial 1 planting was on September 17, and trial 2 on September 26, 2007. Germination was recorded 7, 9, 11, 14 and 21 days after planting for trial 1 and days 4, 5, 7, 8, 11, 14 and 21 for trial 2 by counting observable seedling growth. Germination of all cultivars was the same on days 14 and 21, thus day 14 germination was considered the final germination. Germination percentage was calculated as the percentage of seedlings observed on days 4 – 11 compared to day 14 for each plot. Data was analyzed using PROC GLM with SAS. TifQuik had significantly higher germination than all genotypes including Sand Mountain at days 7 and 9 of trial 1 and days 4, 5, 7, and 9 of trial 2 (Table 1).

Table 1: Germination (percentage of final germination taken after two weeks) of seed from yield trial harvested July 26, 2007. Seed was collected dried and planted on 9/17/07 (Trial 1) and 9/26/07 (Trial 2) in the greenhouse on moist sand.

	Entry	Day 4	Day 5	Day 7	Day 9	Day 11
Trial 1						
	TifQuik			81.7 a	90.0 a	96.7 a
	Tifton 9			51.3 b	63.3 b	86.7 b
	Pensacola			56.7 b	73.3 b	90.0 ab
	Sand Mtn.			56.0 b	73.3 b	90.0 ab
	MSD[a]			8	16	7
Trial 2						
	TifQuik	7.4 a	26.0 a	63.0 a	90.1 a	95.6 a
	Tifton 9	0.0 b	3.3 b	48.7 b	73.8 b	93.5 a
	Pensacola	0.8 b	9.7 b	53.2 b	75.6 b	94.0 a
	Sand Mtn.	0.0 b	2.8 b	29.0 c	63.8 b	92.5 a
	MSD[a]	4	12	11.5	13	5

[a]MSD = Minimum significant difference at p=0.05 level.

Fifty seedlings each of TifQuik, Tifton 9 and Sand Mountain were transplanted into 6 cm diameter clay pots filled with fumigated Tift soil. Plants were watered and allowed to grow for 40 days. On November 20, 2007 plant height (from soil to node of last fully expanded leaf), leaf width (at base of last fully expanded leaf), and leaf length (last fully expanded leaf) were measured from 46 mature plants of each cultivar. Also, most mature culm angle was recorded as degrees from horizontal and converted into single digits (i.e. 1 =10% from horizontal to 9 = completely vertical). TifQuik was significantly taller, had a significantly greater culm angle and had significantly greater leaf length than Old Sand Mountain (Table 2).

Table 2: Average plant height (cm), lateral branch angle, leaf width (cm) and leaf length (cm) of 46 plants each of TifQuik, Tifton 9 and Sand Mountain taken on November 20, 2007 in greenhouse at Tifton, GA from germinated plants transplanted to 6 cm clay pots.

Entry	Plant height	Culm angle[1]	Leaf width	Leaf length
TifQuik	3.13 a	1.74 a	0.52 a	22.1 a
Tifton 9	3.11 a	1.67 a	0.52 a	20.9 a
Sand Mountain	1.88 b	1.11 b	0.50 a	14.7 b
MSD	0.21	0.18	0.02	1.3

[a]MSD = Minimum significant difference at p=0.05 level.

[1] Most mature culm angle - degrees from horizontal (0) and converted into single digits (i.e. 1 =10% from horizontal to 9 = completely vertical).

Exhibit C – Objective Description of Variety

Variety Name: TifQuik bahiagrass

1. Genus/species: *Paspalum notatum* var. Saure

2. Ploidy: diploid

3. Duration: perennial

4. Vegetative growth habit: semi-erect

5. Leaf color: Medium dark green

6. Leaf length (cm, leaf subtending third node from culm terminal):
   Range 11.7 – 31.7
   Average 20.37

7. Leaf width (mm, leaf subtending third node from culm terminal):
   Range 4.0 – 8.0
   Average 6.8

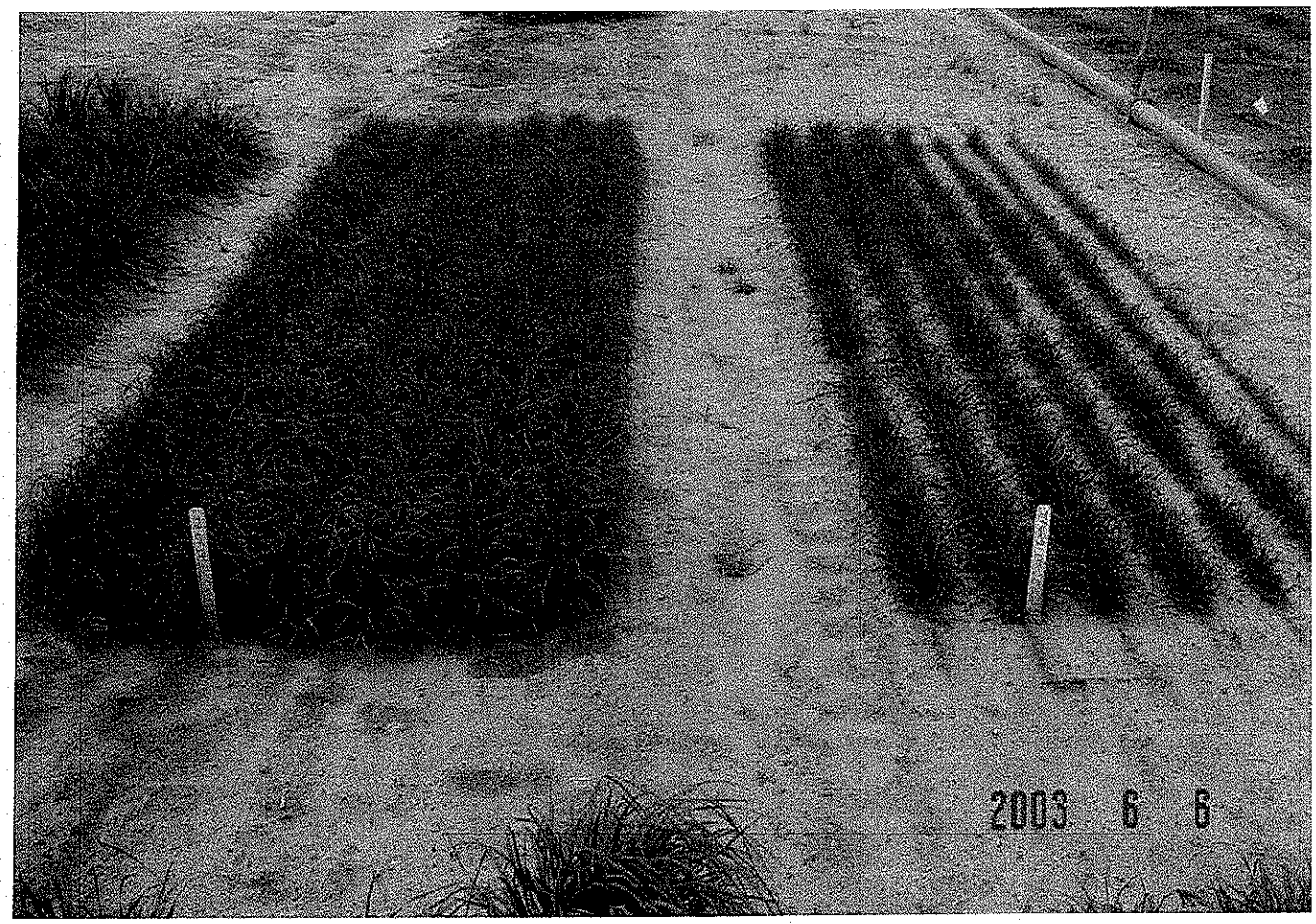
8. Plant height 1 - four weeks from germination: (cm, ground to base of culm terminal):
   Range 6.6 – 40.0
   Average 20.15

9. Plant height 2 – 11 weeks from germination: (cm, ground to base of culm terminal)
   Range 22 – 103
   Average 65.4

10. Raceme length (cm, longest):
    Range 9.5 – 15.5
    Average 12.7

Plants measured: 100 plants, seed germinated in greenhouse April 15, 2005, plant height 1 measured and transplanted to field May 17, 2005. Plants were space planted, good growing conditions and moderate fertility. Plant height 2, leaf length and width, raceme number and length measured June 29 – July 15, 2005.

Figure 2: Establishment of plots of 'TifQuik' and Tifton 9 four weeks after planting, June 6, 2003, Tifton, GA.



TifQuik

Tifton 9

Differences in establishment.

3. Photographs of differences:

Figure 1: Plots of Tifton 9 and TifQuik one week after planting, May 13, 2003, in the field at Tifton, GA.

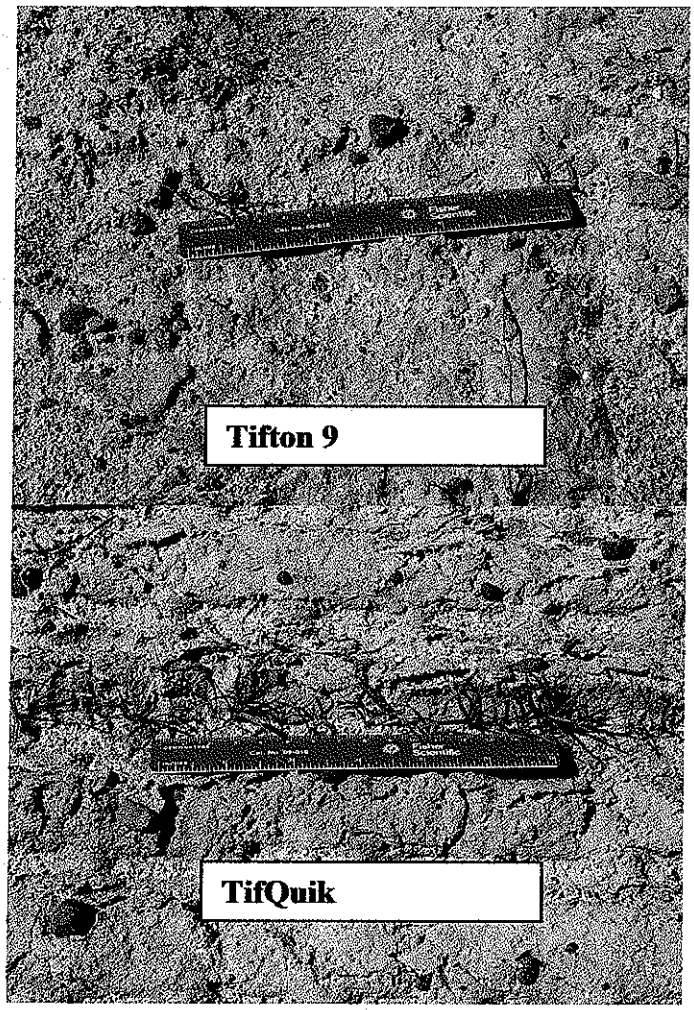


Table 1: Comparative means for morphological traits between Tifton 9 and TifQuik on 100 individual spaced plants in field Tifton, GA 2005.

Cultivar	Culm #	Culm Angle	Plant height	Leaf length	Leaf width	Raceme #	Raceme length
TifQuik	9.44	33.6	65.4	20.4	6.75	2.67	12.7
Tifton 9	9.17	33.7	50.2	24.3	7.07	2.57	13.4
LSD .05	0.38	0.5	4.1	1.3	0.02	0.19	0.4

Culm number = culms counted 4 weeks after germination (May 17, 2005).
Culm angle = degrees from ground (ground level = 0, completely erect = 90) of lowest culm to ground June 30, 2005.
Plant height = ground to base of terminal culm (cm) June 30, 2005.
Leaf length = third leaf from culm terminal (cm) June 29, 2005.
Leaf width = third leaf from culm terminal (mm) June 29, 2005.
Raceme # = average of three flower heads July 15, 2005.
Raceme length = average of longest raceme (cm) on three flower heads July 15, 2005.

Table 1: Mean germination (% of planted seed) of 100 seed planted (three replications) in the greenhouse March 30, 2003

	Days from planting			
	6	8	10	Final germ (30 days)
C4	27.6a	50.3a	59.3a	64.3
Tifton 9	5.3b	15.3b	35.3b	57.0

Table 2: Germination at one and two weeks from replicated field test Tifton, GA, May 2003.

Genotype	Germination % after 1 week	Germination % after 2 weeks
Pensacola	18b	87b
Tifton 9	32b	88b
C4	**75a**	**99a**

Table 3: Plant height from replicated field test Tifton, GA planted May, 2003.

Genotype	Plant Height (cm) - Week 3	Plant Height (cm) – Week 4	Plant Height (cm) - Week 5
Pensacola	7.1b	10.5b	16.1c
Tifton 9	7.9b	12.2b	21.3b
C4	**12.0a**	**20.9a**	**29.2a**

Table 4: Dry matter yields (kg/ha) of bahiagrass genotypes for clippings in establishment year of replicated plots Tifton, GA, 2003.

Genotype	July 8	Aug. 13	Sept. 19	Oct. 22	TOTAL
C4	**3128a**	**3332a**	**1903a**	**1180a**	**9230a**
Tifton 9	1539b	3098a	1590a	937ab	7467ab
Pensacola	797b	2728a	1516a	808b	5850b

Table 5: Total dry matter yields (kg/ha) of bahiagrass genotypes over three years in replicated plots, Tifton, GA.

Genotype	DM Yield TOTAL - 2003	DM Yield TOTAL - 2004	DM Yield TOTAL -2005
C4	**9230 a**	**15969 a**	**15869 a**
Tifton 9	7467 ab	16393 a	15823 a
Pensacola	5850 b	12531 b	12604 b

Table 6: Dry matter yields (kg/ha) of bahiagrass genotypes in 2005 established in 2004 at Overton, TX.

Variety	June 7	July 20	Oct. 19	Total
C4	**540 a**	**1236 a**	**1221 ab**	**2998 a**
Tifton 9	352 ab	1148 ab	1332 a	2832 a
Sand Mountain	355 ab	933 abc	1084 abc	2372 ab
Argentine	237 b	740 c	975 bc	1951 b
Pensacola	279 b	843 bc	790 c	1913 b

Data courtesy of Gerald Evers – Texas A & M University

The University of Georgia – Tifton Campus
Tifton, GA 31793

and

The United States Department of Agriculture
Agriculture Research Service
Washington, D.C. 20250

NOTICE OF RELEASE OF 'TIFQUIK' BAHIAGRASS CULTIVAR FOR FAST GERMINATION, EMERGENCE, AND ESTABLISHMENT

The University of Georgia – Tifton Campus and the Agricultural Research Service, United States Department of Agriculture announce the release of 'TifQuik' bahiagrass (*Panicum notatum* Flügge) cultivar with reduced hard seed and thus faster germination and field establishment than Tifton 9. It has value for establishing bahiagrass forage fields quickly, such that the pasture is covered earlier and grazing or hay removal may be performed sooner with higher yields. The current bahiagrass cultivars have a considerable amount of hard seed and thus require two or three weeks to establish the full stand, during which time weeds may infest the pasture or moisture for germination may be restricted. 'Tifquik' will be particularly valuable to growers who wish to include bahiagrass in a sod-based rotation system with row crops such as peanut and cotton in Southeastern United States.

TifQuik is a result of four cycles of selection for fast germination from Tifton 9 using the recurrent restricted phenotypic selection (RRPS) previously used by Glenn Burton for yield improvements in bahiagrass. For each cycle, enough seed was planted from the previous cycle to obtain 1000 seedlings that germinated within the first week. The sole criterion for selection of plants was early germination. Seedlings were transplanted to 5 cm clay pots in greenhouse and then to a fumigated field to establish a nursery. Plants were allowed to cross pollinate, seed was hand harvested, and the seed was then used to start the next cycle during the following spring in the greenhouse. The four cycles were completed in 2002. Seed from 2002 was used to establish greenhouse germination tests, a replicated field test and begin seed increase.

Germination of TifQuik averaged a five-fold increase compared to Tifton 9 after six days and 3 fold better than Tifton 9 after eight days in greenhouse studies. In field studies TifQuik emerged significantly quicker (75%) than Tifton 9 (32%) and Pensacola (18%) after one week. After 4 weeks, TifQuik (21 cm) plants were taller compared to Tifton 9 (12 cm) and Pensacola (10.5 cm). Dry matter yields of TifQuik were two and four times higher than Tifton 9 and Pensacola two months after planting, respectively. Subsequent yields from cuttings at 4 week intervals resulted in similar yields between TifQuik and Tifton 9.

Mature leaves of TifQuik and Tifton 9 have similar length, width and angle. Flower heads have generally three racemes with lengths similar to Tifton 9. Seed production of TifQuik from 1/5 acre plots was higher than for Tifton 9 in the second year of breeder seed increase.

Seeds of TifQuik will be deposited in the USDA-ARS National Plant Germplam System. Breeder seed will be maintained by USDA/ARS Crop Genetics and Breeding Research Unit in Tifton, GA. Foundation seed will be maintained by the Georgia Crop Improvement Association. TifQuik will be released on a semi-exclusive basis.

Dean and Director College of Agricultural and Environmental Sciences, University of Georgia

Date

Edward B. Knipling

Administrator, Agricultural Research Service
U. S. Department of Agriculture

5/25/06

Date

ATTACHMENT I

APPLICATION FOR APPROVAL OF __X__ CULTIVARS _____ ASSOCIATE CULTIVARS

1. Crop: ___Bahiagrass (*Paspalum notatum* Flugge)

2. Experimental no. or name: __C4

3. Pedigree and history: ___Recurrent restricted phenotypic selection within Tifton 9 bahiagrass (Cycle 4)

4. Description: __'C4' bahiagrass is a fast emerging forage grass that is propagated by seed. C4 has similar plant characteristics to 'Tifton 9' bahiagrass except for faster germination and quicker establishment in the field.

5. Station(s) where developed: __University of Georgia - Tifton campus

6. Participating scientist(s): William F. Anderson, Wayne W. Hanna, Roger N. Gates

   Copy of the appropriate and adequate data comparing proposed release to standard cultivar must be attached to this form. (See attached)

7. In what respect is the new cultivar superior to the cultivar now in use? or reasons for proposing release as an associate cultivar ___The 'C4' bahiagrass has a four-fold or greater percentage germination than 'Tifton 9' within 7 days of planting (60% for Tifton 9 compare to 15% for C4). Subsequently, pastures are established faster, reducing problems with competitive weeds and growers can obtain up to one ton advantage in dry matter forage yields in the establishment year.

8. Method of propagation: ___Seed

9. Amount of breeder seed stocks available (if applicable): ___100 lb
10. Amount of foundation seed stocks available (if applicable): __5 acres of increase established in 2005 for seed production in 2006 (Georgia Seed Development Commission)
11. Amount of cutting or bud material available for vegetatively propagated material for nursery distribution (if applicable):

12. Is there likely to be unusual difficulty encountered in the production of any class of seed stocks? Explain.
No. But, care will be required to isolate the cultivar from other bahiagrass cultivars and natural stands.

13. Three suggested names for the cultivar: 'TifQuik' - (highly preferred)
'Rapid C4'
'Quikgraze'

14. Name approved by Plant Cultivar and Germplasrn Release Committee:

15. Form of intellectual property protection: PVP

16. Is a royalty assessment recommended: X Yes ____ No

RECOMMENDED BY:

A. _____
Originating Scientist

B. _____
Department Head

C. _____
Chairperson, GAES Plant Cultivar
and Germplasm Release Committee

D. _____
Resident Director
Appropriate Station

E. _____
Associate Dean for Research

F. _____

APPROVED:

_____
Dean and Director
College of Agricultural and Environmental Sciences

EXHIBIT – E

UNIVERSITY OF GEORGIA RESEARCH FOUNDATION, INC.
STATEMENT OF APPLICANT'S OWNERSHIP

The variety for which plant variety protection is hereby sough was developed by Wayne W. Hanna, an employee at the University of Georgia Agricultural Experiment Station. The Georgia Agricultural Experiment Station is a part of The University of Georgia. The University of Georgia is one of the universities in the University System of Georgia. The Board of Regents of the University System of Georgia ("Board of Regents") is a body that was created by the Constitution of the State of Georgia and is charged with the responsibility of operating the universities in the University System of Georgia. The University of Georgia Research Foundation, Inc. is a Georgia nonprofit corporation which was incorporated to, among other things, own and exploit intellectual property developed or created at The University of Georgia. On June 9, 1982, the Board of Regents approved a Patent Policy regarding inventions and discoveries by persons employed at the University of Georgia. As an employee at the Georgia Agricultural Experiment Station, Wayne W. Hanna is subject to said Patent Policy. Rights in novel plant varieties developed at the University of Georgia, including TifQuik, are covered by said Patent Policy. By agreement, the Board of Regents assigned to the University of Georgia Research Foundation, Inc. all rights in intellectual property covered by said Patent Policy. This agreement applies to then existing intellectual property and to intellectual property which was developed thereafter.

U. S. GOVERNMENT
STATMENT OF APPLICANT'S OWNERSHIP

William F. Anderson and Roger N. Gates are employees of the U.S. Government, as represented by the Secretary of Agriculture for the U.S. Department of Agriculture.

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U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

Application is required in order to determine if a plant variety protection certificate is to be issued *(7 U.S.C. 2421)*. The information is held confidential until the certificate is issued *(7 U.S.C. 2426)*.

1. NAME OF APPLICANT(S) University of Georgia Research Foundation, Inc./ United States Government as represented by the Secretary of Agriculture

MAB 4/29/09

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER: Rapid C4

3. VARIETY NAME: TifQuik

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP, and Country)*

University of Georgia Research Foundation, Inc.
627 Boyd Graduate Studies Research Center
Athens, GA 30602-7411

5. TELEPHONE *(Include area code)*: (706) 542-1404

6. FAX *(Include area code)*: (706) 542-3837

7. PVPO NUMBER: #200700209

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. **If no, please explain.** ☑ YES ☐ NO

9. Is the applicant (individual or company) a U.S. national or a U.S. based company? **If no, give name of country.** ☑ YES ☐ NO

10. Is the applicant the original owner? ☑ YES ☑ NO **If no, please answer one of the following:**

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?
☑ YES ☐ NO **If no, give name of country**

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?
☐ YES ☐ NO **If no, give name of country**

11. Additional explanation on ownership *(Trace ownership from original breeder to current owner. Use the reverse for extra space if needed)*:

The variety was jointly developed and is co-owned by the University of Georgia Research Foundation, Inc. and the United States Government as represented by the Secretary of Agriculture. See Attached for additional explanation of ownership for the University of Georgia Research Foundation, Inc.

PLEASE NOTE:

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705

EXHIBIT F
DECLARATION REGARDING DEPOSIT

NAME OF OWNER (S)	ADDRESS *(Street and No. or RD No., City, State, and Zip Code and Country)*	TEMPORARY OR EXPERIMENTAL DESIGNATION
University of Georgia Research Foundation, Inc./United States Government as represented by the Secretary of Agriculture MAH 4/28/2008	University of Georgia Research Foundation, Inc. 627 Boyd Graduate Studies Research Foundation, Inc. Athens, GA 30602-7411	Rapid C4 **VARIETY NAME** TifQuik
NAME OF OWNER REPRESENTATIVE (S)	**ADDRESS** *(Street and No. or RD No., City, State, and Zip Code and Country)*	FOR OFFICIAL USE ONLY
Robert R. Fincher	University of Georgia Research Foundation, Inc. 627 Boyd Graduate Studies Research Foundation, Inc. Athens, GA 30602-7411	**PVPO NUMBER** #200700209

I do hereby declare that during the life of the certificate a viable sample of propagating material of the subject variety will be deposited, and replenished as needed periodically, in a public repository in the United States in accordance with the regulations established by the Plant Variety Protection Office.

Robert R. Fincher
Signature

March 15, 2007
Date

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